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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/767,562 | 01/29/2004 | Gerd Knappe | 304-820 | 5090 |
| 30448 | 7590 | 06/28/2005 | EXAMINER | |
| AKERMAN SENTERFITT | | | KRAMSKAYA, MARINA | |
| P.O. BOX 3188 | | | ART UNIT | |
| WEST PALM BEACH, FL 33402-3188 | | | PAPER NUMBER | |

2858

DATE MAILED: 06/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary

Application No.

10/767,562

Applicant(s)

KNAPPE ET AL.

Examiner

Marina Kramskaya

Art Unit

2858

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
 Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 January 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>5/17/04 & 06/06/05</u> | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the MOSFET's, the gate control voltage, the control means, the evaluation means, and the turns in the sensor must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities: it is improper to make reference to claims by claim number as in paragraph [005] on page 1.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Kawate et al., US 6,642,711.

As per Claim 1, Kawate discloses a circuit arrangement with several inductively operating sensors (Sense Coil 1-4), said circuit arrangement having

- switching means (groups of T3 & T4, FIG. 2, part 1),
- control means (Main Voltage Regulator, FIG. 2, part 2) for said sensors and
- evaluating means (Comparator, FIG. 2, part 1) for signals generated by said sensors as a response to said control means and

- by means of said switching means said control means and said evaluating means are electrically connected to in each case one said sensor (see combination FIG. 2, parts 1 & 2),
- wherein said switching means comprise a MOSFET (groups of transistors T3 & T4) with a low drain-source resistance. It is inherent for a MOSFET to have a low drain-source resistance during conduction.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawate in view of Hohl, US 6,724,198.

Kawate discloses an inductive circuit arrangement as applied to Claim 1, above.

Kawate does not disclose providing precisely one switching means per sensor.

Hohl discloses providing precisely one switching means (50) per inductive sensor (20), FIG. 2A.

Therefore, it would have been obvious to a person of ordinary skill in the art to provide precisely one switch per inductive sensor, as taught by Hohl, in order to enable oscillation (Hohl: column 4, lines 35-45).

7. Claims 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawate in view of James, US 6,512,370.

Kawate discloses an inductive circuit arrangement as applied to Claim 1, above.

Kawate does not disclose circuit arrangement having resonant circuit capacitors, with a single resonant circuit capacitor being a first resonant circuit capacitor and being connectable by a switching means parallel to in each case all said sensors for producing a measuring frequency and a second resonant circuit capacitor parallel to said first resonant circuit capacitor, and switches are provided in order to switch on and off said different resonant circuit capacitors.

James discloses an inductive sensing (inductive sensor **12**) circuit arrangement a first (**C1**) and second (**C2**) resonant capacitors (part of resonant circuit **17**), connected via switching means (**21**) to the sensor and wherein the second capacitor is connected in parallel to the first capacitor (FIG. 5).

Therefore, it would have been obvious to a person of ordinary skill in the art to employ a resonant circuit with parallel resonant capacitors, as taught by James, in order to produce resonating frequencies without changing the current levels.

As per Claim 5, James discloses a plurality of measuring frequencies are produced by the circuit arrangement, wherein switching on and off of said resonant circuit capacitors produces different measuring frequencies. Although, James does not expressly teach producing a difference of at least 8% between measuring frequencies, it

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would have been obvious to a person of ordinary skill in the art to arrive at the difference of at least 8% by routine experimentation (see MPEP 2144.05).

8. Claim 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawate in view of Smolenski et al, US 6,350,971.

Kawate discloses an inductive sensor circuit arrangement as applied to Claim 1, above.

Kawate does not disclose an inductive sensor circuit for detection of a pot or saucepan in a cooking zone.

Smolenski discloses an inductive sensor circuit, wherein said sensors are pot or saucepan (vessel 120) detection sensors (160 inductive loop) in a cooking zone (column 3, lines 25-34).

Therefore, it would have been obvious to a person of ordinary skill in the art to use an inductive position sensor to detect the presence of a cooking vessel, as taught by Smolenski, in order to detect when a range top needs to be heated.

As per Claim 7, Kawate further discloses the circuit arrangement, wherein the sensor is a wire loop having a few turns (see FIG. 2, part 1, Sense coils 1-4).

9. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawate in view of Uber, III et al., US 6,353,324.

Kawate discloses a method for operating a circuit arrangement with several inductively operating sensors (Sense Coil 1-4), having

- switching means (groups of T3 & T4),
- control means (Main Voltage Regulator) for said sensors and
- evaluating means (Comparator) for signals, which are generated by said sensors as a response to said control means and
- by means of said switching means, said control means and evaluating means are electrically connected to in each case one said sensor (see combination FIG. 2, parts 1 & 2),
- said switching means being a MOSFET (groups of transistors T3 & T4) with a low drain-source resistance, (It is inherent for a MOSFET to have a low drain-source resistance during conduction).

Kawate does not disclose readjusting a gate control voltage of the MOSFET so as to give a frequency which is constant with varying temperature.

Uber discloses a method of inductively sensing, wherein a gate control voltage (+Vs) of the MOSFET (169) is readjusted so as to give a frequency which is constant with varying temperature (column 22, lines 46-48).

Therefore, it would have been obvious to a person of ordinary skill in the art to provide a MOSFET with gate control voltage, as taught by Uber, in order to provide temperature compensation for the sensing method.

10. Claims 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawate in view of Uber as applied to claim 8 above, and further in view of James.

As per Claim 9, Kawate in view of Uber disclose a method of operating a circuit arrangement with several inductively operating sensors as applied to claim 8, above

Kawate does not disclose operation, which takes place with two measuring frequencies.

James discloses a method of inductive sensing, wherein operation takes place with varying measuring frequencies (ABS., lines 2-4).

Therefore, it would have been obvious to a person of ordinary skill in the art to set the varying frequency, as taught by James, during operation to two measuring frequencies, in order to indicate the magnitude and polarity of the magnetic field in the inductive sensor.

As per Claim 11, Kawate in view of Uber disclose a method of operating a circuit arrangement with several inductively operating sensors as applied to claim 8, above.

Kawate does not disclose a method of inductive sensing, wherein two different capacitors are connected in parallel to one said sensor as resonant circuit capacitors and are operated with different measuring frequencies.

James discloses a method of inductive sensing, wherein two different capacitors are connected in parallel (C1 and C2) and operation takes place with varying measuring frequencies (ABS., lines 2-4).

Therefore, it would have been obvious to a person of ordinary skill in the art to operate the capacitors with difference measuring frequencies, in order to indicate the magnitude and polarity of the magnetic field in the inductive sensor.

11. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawate and Uber as applied to claim 8 above, and further in view of Smolenski.

Kawate in view of Uber disclose the method of operating a circuit arrangement with several inductively operating sensors.

Kawate does not disclose a method of inductive sensing, wherein a probability is calculated and it is established whether or not a saucepan is present by averaging over numerous measurements

Smolenski discloses an inductive sensing method (**160** inductive loop), wherein by averaging over numerous measurements a probability is calculated and by means (by processor **170**) thereof it is established whether or not a saucepan (vessel **120**) is present (column 3, lines 25-34).

Therefore, it would have been obvious to a person of ordinary skill in the art to use an inductive position sensor to detect the presence of a cooking vessel, as taught by Smolenski, in order to detect when a range top needs to be heated.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Friend et al., US 6,653,831, Matsumoto et al., US 6,373,264,

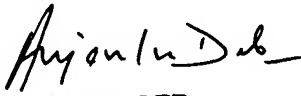
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Ward, US 6,456,067, Hillard et al., US 6,803,859, disclose an arrangement and method of inductive sensing. Strayer et al., US 6,700,389, and Ott et al., US 6,529,007, disclose a method and arrangement for temperature compensation for an inductive sensor. Haffner et al., US 6,731,119, and Tang et al., US 6,867,587, disclose an arrangement and method of providing a capacitive resonator for an inductive sensor.

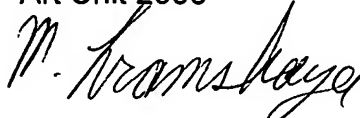
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marina Kramskaya whose telephone number is (571)272-2146. The examiner can normally be reached on M-F 7:00-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on (571)272-2180. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


ANJAN DEB
PRIMARY EXAMINER

Marina Kramskaya
Examiner
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